

CLAIMS

1. A method for use in a receiver, the method comprising:

receiving a hierarchical modulation based received signal, the hierarchical modulation based signal comprising at least a first signal layer and a second signal layer; and

5 simultaneously recovering from the received hierarchical modulation based received signal data conveyed in the first signal layer and data conveyed in the second signal layer.

2. The method of claim 1, wherein the first signal layer is an upper signal layer and the second signal layer is a lower signal layer.

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3. The method of claim 1, wherein the simultaneously recovering step includes the steps of:

decoding the hierarchical modulation based signal to recover data conveyed in the first signal layer;

15 generating soft metrics from the hierarchical modulation based signal as a function of a combined signal space of the hierarchical modulation based signal; and

decoding the hierarchical modulation based signal to recover data conveyed in the second signal layer as a function of the generated soft metrics.

20 4. The method of claim 3, wherein the soft metrics are log-likelihood ratios.

5. The method of claim 3, wherein the combined signal space is a combination of a signal space of the first signal layer and a signal space of the second signal layer.

25 6. The method of claim 3, wherein the generating step includes the step of using the hierarchical modulation based signal as an index into a look-up table of soft metrics.

7. A method for use in a receiver for receiving a hierarchical modulation based signal comprising at least a first signal layer and a second signal layer, the method comprising:

30 receiving a training signal from an endpoint;

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calculating soft metric values as a function of a combined signal space and the received training signal, wherein the combined signal space is a combination of a signal space of the first signal layer and a signal space of the second signal layer; and
storing the calculated soft metric values in a look-up table.

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8. The method of claim 7, further comprising:

receiving the hierarchical modulation based signal;

decoding the hierarchical modulation based signal to recover data conveyed in the first signal layer; and

10 decoding the hierarchical modulation based signal to recover data conveyed in the second signal layer as a function of the stored metric values.

9. The method of claim 8, wherein the soft metric values are log-likelihood ratios.

15 10. A receiver comprising:

a demodulator for demodulating a received signal to provide a hierarchical modulation based signal comprising at least two signal layers;

a first decoder operative on the hierarchical modulation based signal for decoding one of the at least two signal layers to provide data therefrom; and

20 a second decoder for providing data from the other of the at least two signal layers; wherein the second decoder operates independently of the first decoder.

11. The apparatus of claim 10, wherein the at least two signal layers include an upper signal layer and a lower signal layer.

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12. The apparatus of claim 10, further including a look-up table for storing therein soft metrics, wherein the soft metrics are determined as a function of a combined signal space of the at least two signal layers and wherein the look-up table provides the soft metrics to the second decoder for use therein for providing the data from the other of the at least two signal layers.

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13. The apparatus of claim 12, wherein the soft metrics are log-likelihood ratios.

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14. Apparatus comprising:

a television set for displaying video content; and

a receiver coupled to the television set for receiving a hierarchical modulation based signal conveying the video content, wherein the receiver simultaneously decodes at least two
5 signal layers of the received hierarchical modulation based signal for providing the video content to the television set.

15 The apparatus of claim 14, wherein the received hierarchical modulation based signal is a satellite signal.

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16. The apparatus of claim 14, wherein the receiver includes a look-up table for storing soft metrics, which are determined as a function of a combined signal space of the at least two signal layers.

15 17. The apparatus of claim 16, wherein the soft metrics are log-likelihood ratios.

18. Apparatus comprising:

a simultaneous demodulator/decoder for processing a hierarchical modulation based received signal comprising at least a first signal layer and a second signal layer; and

20 at least one register for use in controlling the simultaneous demodulator/decoder for simultaneously recovering from the hierarchical modulation based received signal data conveyed in the first signal layer and data conveyed in the second signal layer.

19. Apparatus comprising:

25 a lead for receiving a hierarchical modulation based received signal comprising at least a first signal layer and a second signal layer signal; and

a simultaneous demodulator/decoder for processing the hierarchical modulation based received signal for simultaneously recovering therefrom data conveyed in the first signal layer and data conveyed in the second signal layer.

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